increased, and in hereditary ataxia telangiectasia where the values are diminished or absent. In the nephrotic syndrome, γG and γA levels are low but the γM fraction is normal or slightly elevated. In protein-losing enteropathies, all serum immunoglobulins may be low. Elevation of IgM levels during the neonatal period is indicative of congenital infections. Marked elevation of IgM levels occur in systemic parasitic infestations, the presence of IgM in spinal fluid being considered presumptive evidence of trypanosomiasis in Africa. More recently, elevated IgM levels have been used to differentiate infectious from serum hepatitis.

EDWARD SHANBROM, M.D.

REFERENCE

Lou K, Shanbrom E: Immunodiffusion techniques in clinical medicine. II. Radial immunodiffusion. JAMA 200:323, 1967

Value of Total Thyroxin and Free Thyroxin Measurements in Thyroid Evaluation

The protein-bound iodine (PBI) and radioiodine (RAI) uptake can be altered by numerous substances even though no abnormality of the thyroid gland exists. Availability of total serum thyroxin and free serum thyroxin measurements now provide more accurate means for evaluating the thyro-metabolic status. With excessive inorganic or organic iodides, especially iodinated radiographic dyes, the PBI is elevated and the RAI uptake decreased. Measurement of total serum thyroxin eliminates all exogenous sources of iodide and measures only thyroxin iodine. With abnormal binding of thyroxin to serum proteins, the PBI may be increased (oral contraceptives, pregnancy) or decreased (androgens, Dilantin,® nephrosis). The free thyroxin level determines the amount of metabolically active hormone (free thyroxin) present even though total thyroxin levels may be altered by abnormal binding to serum proteins.

WINSTON A. TUSTISON, M.D.

REFERENCES

Sterling K, Brenner MA: Free thyroxine in human serum: Simplified measurement with the aid of magnesium precipitation. J Clin Invest 45:153-163, 1966

Murphy BEP, Pattee CJ, Gold A: Clinical evaluation of a new method for the determination of serum thyroxine. J Clin Endo 26:247-256, 1966

Clinical Indications for the Analysis of Immune Globulins

Quantitation of specific immunoglobulins is helpful in the evaluation of three classes of patients: (1) the patient with a suspected immunoglobulin deficiency syndrome who presents with recurrent infections; (2) the patient with hyperglobulinemia; and (3) the newborn in whom an intrauterine infection is suspected.

1. Immunoglobulin deficiency syndromes may be either congenital or acquired and may demonstrate a selective or combined deficiency of either IgG, IgA, or IgM. Those deficient in IgG may be helped substantially by parenteral gamma globulin.

2. Patients with hyperglobulinemia fall into two classes, those with malignancies of the lymphoreticular system exemplified by multiple myeloma and those with an increase in all immunoglobulins such as in hepatitis and chronic infectious processes.

Patients with myeloma and hyperglobulinemia usually have a selective increase in IgA or IgG with a depression of the other immunoglobulins.

3. The newborn usually begins synthesizing IgM around the time of birth. If exposed in utero to infections such as rubella, cytomegalic inclusion disease, or toxoplasmosis, significant IgM will be synthesized and appreciable levels will be found in cord blood.

J. E. LEWIS, M.D.

REFERENCE

Fahey JL: Antibodies and immunoglobulins. II. Normal development and changes in disease. JAMA 194:255-258, 1965

Phosphate Treatment Of Hypercalcemia

Hypercalcemia may occur in a variety of conditions including parathyroid adenoma, carcinomatosis, vitamin D intoxication, and immobilization of patients with Paget's disease. Hypercalcemia causes symptoms such as constipation, lethargy, lassitude, and in more severe conditions, nausea, vomiting and dryness of the mouth. Inorganic phosphate given orally or, in an emergency, intra-

venously has been found to be effective in lowering the serum calcium without producing soft tissue calcification. Orally a phosphate powder preparation (Hyper-Phos®) provides 100 mg of phosphorus per capsule. Initially ten capsules and later up to 30 capsules are given daily to control the level of serum calcium.

PHILIP CORR, M.D.

REFERENCES

Massry SG, Mueller E, Silverman AG, et al: Inorganic phosphate treatment of hypercalcemia. Arch Inter Med 121:307-312, 1968

Goldsmith RS, Ingbar SH: Inorganic phosphate treatment of hypercalcemia of diverse etiologies. New Eng J Med 274:1-7, 1966

Disaccharidase Deficiency: A Clinical Reality

Recognition of intestinal disaccharidase deficiency (particularly lactase) as a cause of symptoms in the newborn has long been accepted as a clinical entity. Acceptance as a syndrome in the adult has, at best, been recognized for only a decade. It occurs in 5 to 20 percent of Caucasians and 60 to 90 percent of non-Caucasians. It would appear mandatory that clinicians study those patients with clearly defined symptoms (diarrhea, abdominal distension, flatulence, abdominal colic) of unproven cause for disaccharidase deficiency. Recent studies show that patients with acute enteric diseases of known cause may show persistence of disaccharidase deficiency long after the cause of the primary disease has been eliminated. Disaccharidase deficiency should be considered in patients with (1) psychophysiologic gastrointestinal disease, (2) those with persistence of an "irritable bowel syndrome" after an acute intestinal upset of known cause, and, (3) patients with postoperative "dumping syndrome." Bayless and co-workers have outlined workable criteria for establishment of the diagnosis of lactase deficiency in the adult.

ROBERT J. BOLT, M.D.

REFERENCES

Gray GM, Walter WM Jr, Colver EH: Persistent deficiency of intestinal lactase in apparently cured tropical sprue. Gastroent 54:552-558, 1968

Bayless TM, Rosensweig NS, Christopher N, et al: Milk intolerance and lactose tolerance tests. Gastroent 54:475-477, 1968

The Clinical Use of Medium Chain Triglycerides

Although medium chain length triglycerides (MCT) have certain characteristics which offer potential therapeutic benefit, the therapeutic utility of MCT has been somewhat less than might have been anticipated from knowledge of physiological behavior. The most encouraging reports have come from the use of MCT in patients with chylous ascites, chyluria, or chylothorax. MCT have also been used in treatment of malabsorption syndromes of various causes with some beneficial effect on severity of diarrhea and steatorrhea. However, isocaloric substitution of MCT for long chain triglycerides has rarely led to weight gain, and the use of MCT in patients with malabsorption should probably be limited to clinical situations in which effective conventional therapy has either failed or does not exist. MCT should probably not be used in patients with active inflammatory bowel disease or hepatic encephalopathy.

GERALD REAVEN, M.D.

REFERENCE

Greenberger NJ, Skillman TG: Medium chain triglycerides. New Eng J Med 280:1045-1058, 1969

Indications for Pacemakers In Cardiac Disease

Artificial pacemakers may be indicated in a number of diseases which result in bradycardia. As a general rule the bradycardia should be accompanied by symptoms, either Adams-Stokes attacks or congestive heart failure. The following are included in this category: second and third degree atrioventricular block, first degree atrioventricular block with bundle branch block, sinoatrial block and sinus arrest. On rare occasions unresponsive tachycardia may be controlled by an artificial pacemaker.

MICHAEL BILITCH, M.D.

REFERENCES

Bilitch M, Lau FYK, Cosby RS: Recent advances in artificial pacemakers. Calif Med 107:164-170, 1967

Pomerantz B, O'Rourke RA: The Stokes-Adams syndrome. Amer J Med 46:941-960, 1969